25X1A [redacted]

20 January 1954

25X1A [redacted]
25X1

25X1A Reference: Government [redacted] 25X1
25X1A

25X1A Dear Miss [redacted]

Enclosed are five copies of Technical Report No. 1 on the above-referenced contract.

Sincerely yours,

[redacted] 25X1A

WB:aq

Enclosures: Technical Report No. 1 (5 copies)

25X1A cc: Mr. [redacted]
Contracting Officer

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Technical Report No. 1

Government [redacted] 25X1 25X1A

a. Current Status of Work

The following areas have been worked on during this period.

1. The equipment should cover a frequency range from a few [redacted] 25X1D The requirements are shown in Fig. II-2 of our proposal. We now have to choose the power of the zoom system such as to give in Image Plane 2 a size for the necessary filters that are reasonable to make, while the power of the eyepiece is such that the target and filter is easily seen and judged by the eye. The following choice was arrived at, As a filter we would use 25X1D

[redacted]

Table I shows the ranges one can cover with this equipment.

It is clear from this Table that all desired line frequencies are covered with this arrangement. All that is needed is a [redacted] 25X1 microscope with a quadruple nosepiece. This was bought and is delivered.

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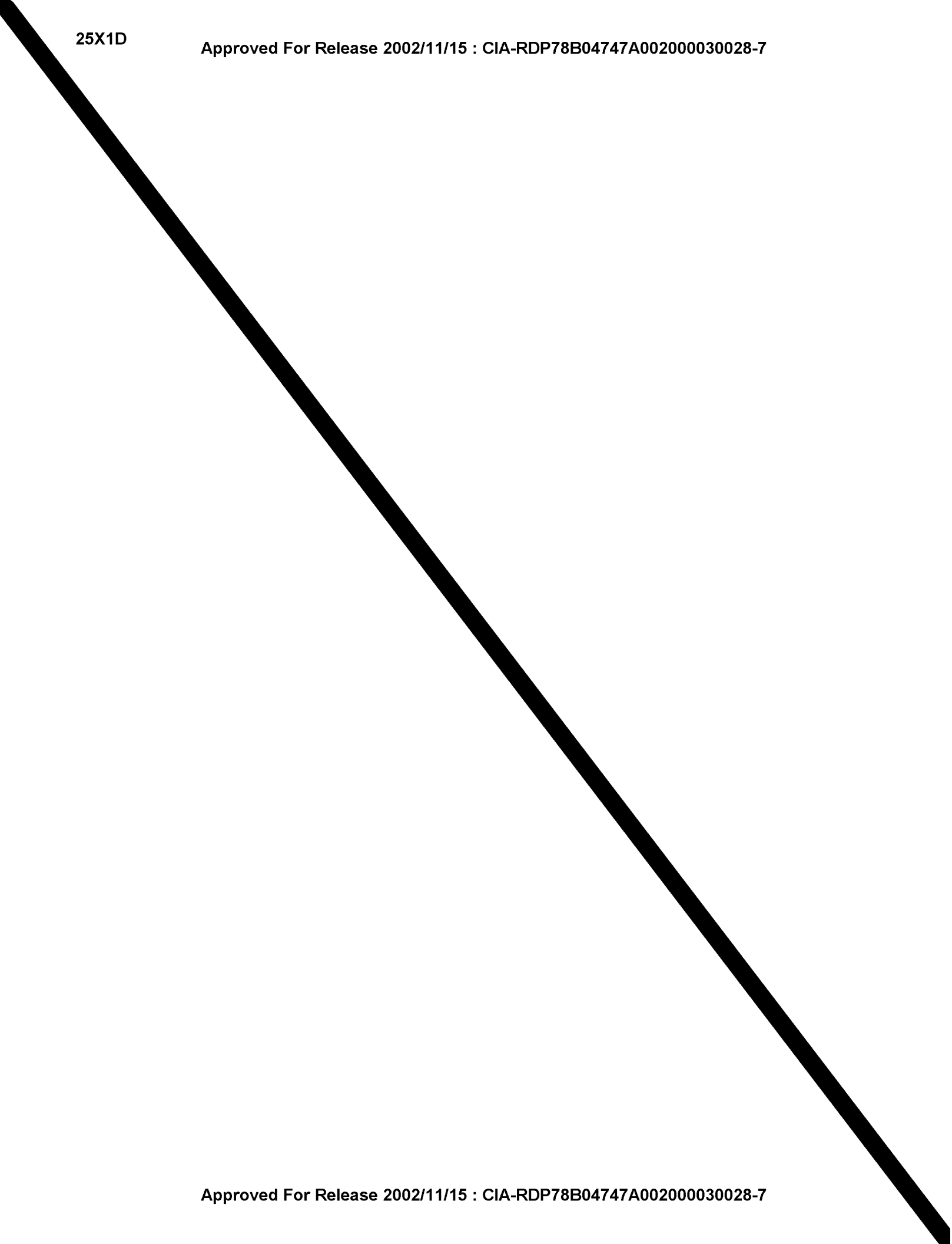

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The desired goal is to split the field in two halves with a sharp dividing line between the two halves. The shown inclination of the glass plates in Fig. 1 allows us to effectively get a sharp dividing line. A rotation around axis a, as shown in the figure, will displace one-half of the field. This is necessary because of the way the filter is used (a phase change of 180°) and for the phase measurements. Fig. 2 shows the effect of this arrangement in a crude form.

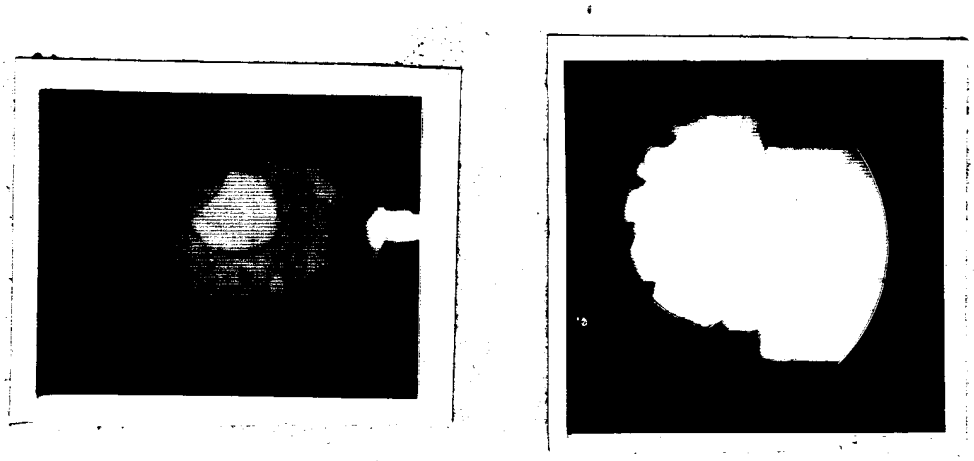

Fig. 2

3. Various possibilities were discussed for the target holder. It was decided to postpone any work on this until we had more information about the equipment on which the sine wave tester was to be used.

A start was made on the eyepiece requirements since it had to have an accessable object-plane, which is not

the case on ordinary microscope objectives.

A search was initiated to obtain information about available microscope objectives and their quality. The best quality microscope objectives should be used, since their quality will affect the measurements.

b. Problem Areas Encountered

No problem areas were encountered during this phase of the contract.

c. Projected Work for Next Monthly Period

1. Refine the split-field device.
2. Decide on the necessary eyepiece.
3. Get acquainted with the equipment on which sine wave tester is to be used.
4. Continue the investigation on available microscope objectives.
5. Decide on target arrangement.
6. If time permits, build a preliminary mock-up to test the accuracy of the set-up.

d. Status of Funds Expended

From the period of December 1, 1964 to December 31, 1964

25X1A [redacted] This figure includes direct labor, materials, overhead and G. and A. and fixed fee.

e. Documentation of any verbal committments and/or agreements with the Technical Representatives of the Contracting Officer during the reporting period.

The following oral agreements were made with your personnel at a meeting at [redacted] on the 17th of 25X1

December 1964. Present at the meeting were two of your representatives. The following decisions were made.

1. Our customer would start collecting data on the equipment on which the sine wave tester is to be used. Then a possible visit is to be arranged so that the equipment can be seen.

2. The customer would start making the filters of 15 lines/mm and 1 line/mm. They agreed to give us some of the preliminary results so we could experiment with them.

25X1A

Submitted by:

[redacted]

20 January 1964

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